REMARKS

The Office Action was mailed in the present case on February 13, 2006, making a response due on or before May 13, 2006. This response is being submitted, along with a Petition For Extension of Time Within the Second Month, and the required extension fee. No further fee is thought to be due at this time. If any additional fee is due for the continued prosecution of this application, please charge the same to Applicant's Deposit Account No. 50-2555 (Whitaker, Chalk, Swindle & Sawyer, LLP).

The Examiner previously required restriction in the case between Claims 1-13 and 25 in Class 428, subclass 34.1 and Claims 14-24 and 26, in Class 427, subclass 181. Applicant has previously elected to prosecute Claims 14-24 and 26 drawn to a method of protecting a ferrous metal device, without traverse. Accordingly, Claims 1-13 and 25 have been withdrawn, without prejudice toward filing a divisional application.

The Examiner objected to Applicant's Abstract as originally filed. The Abstract has accordingly been amended in this response.

The Examiner also objected to Applicant's Title of the Invention and the title has been rewritten, largely along the lines suggested by the Examiner, but also in view of the amendments made to the claims in this response.

The Examiner rejected Applicant's original Claim 26 under 35 U.S.C. §112. Applicant has canceled Claim 26 in this response, thereby mooting that ground of rejection.

The Examiner substantively rejected Applicant's remaining claims under 35 U.S.C. §103(a) based upon Kucera et al. (6,383,307) in view of Berdin et al. (WO 00/44506). The Examiner argues that Kucera et al. basically teaches the coating employed by Applicant. The Examiner admits that Kucera et al. fails to explicitly teach the use of such coatings on products "used in the waterworks

industry as part of a fluid conveyance system", but argues that Berdin et al. supplies this deficiency since Berdin et al. teaches that steel waterworks pipes are routinely given an internal coating to protect against corrosion.

Applicant has amended Claims 14-17 and 24 in view of the Examiner's remarks and has canceled Claim 26. Reconsideration of the remaining claims is respectfully requested in view of the remarks which follow.

Applicant has amended remaining independent Claim 14 to describe the application of an "asphalt-free" corrosion protection system. Support for the term "asphalt-free" can be found on page 7, line 1 of Applicant's Specification as originally filed. Applicant has also amended independent Claim 14 to more specifically describe the ferrous metal device under consideration as being a "ductile iron pipe component which forms a part of a water or sewer line." Support for the amended claim language can be found at page 6, lines 1-8, at page 7, lines 11-13, and at numerous other points in the Specification as originally filed. The particular ductile iron pipe components are listed specifically in dependent Claims 16 as an "iron pipe" and in dependent Claim 17 as a "fitting", i.e., an elbow or other pipe component in the fluid conveyance system. In other words, the remaining claims are all now directed to pipes and pipe components which make up a sewer or water line. These types of components are all cylindrical bodies, i.e., "pipes" such as those described in Applicant's Specification on page 28, lines 3-12.

The claims have been amended in this way to limit the claimed invention to a method of corrosion protecting such items which replaces the asphalt based and cement-mortar based systems of the prior art traditionally used in the industry. The distinguishing term "asphalt-free" has been used in the amended claim language to distinguish the asphalt type coating processes of the past, since these type systems were probably more similar in the overall application technique than were the cement-mortar type systems.

As discussed in Applicant's Background portion of the Specification beginning at about page 4, line 10, various coating technologies have been developed over the years to combat the problem of corrosion in the waterworks industry. The asphalt-based coating compositions have been used for many years to coat ductile iron or metallic or partially metallic pipes, conduits, tubing and the like. However, most asphalt-based pipe coating compositions which exhibit sufficient coating properties are formed with solvent-based solutions of asphalt and mineral spirits. While these coatings are minimally acceptable for their intended purposes, they release volatile organic compounds (VOCs) while drying. The VOC release can be very significant such that, during the pipe manufacturing process in which the coatings are applied, pipe production must either occasionally be curtailed to avoid VOC releases in excess of EPA standards or EPA fines may be incurred.

Asphaltic aqueous emulsions which do not release VOCs are known, but to date have generally not exhibited the necessary properties which facilitate their use as a coating composition for ferrous piping and components. The thickness and shear sensitivity of aqueous asphalt emulsions, as well as other mechanical properties, have generally prevented their use as a direct pipe surface coating in the past.

Problems have also been encountered in the past with the known emulsion type coatings with respect to the ability of the emulsions to achieve good adhesion directly to the pipe surface. Certain of the components of the emulsions have proven to be degradable in the presence of, oily substances encountered on some pipe or other surfaces. The emulsions also tend to be temperature sensitive which can create problems when trying to achieve manufacturing coating uniformity in year-round pipe manufacture. Due to the shear sensitivity and poor adhesion properties, it is also difficult to apply many of the prior art emulsions to a pipe surface, to avoid "sag" caused by gravity during the setting process.

Thus, even though asphalt and other "emulsion" type coatings have been known in the waterworks industry, they have all had various disadvantages which the presently claimed coating system overcomes. There is no release of VOC's, no problem with adhesion in high temperatures and no

"sag" of the coating with the coating system presently claimed by Applicant.

The other most commonly used corrosion protection scheme in the waterworks industry is the use of cement-mortar linings. However, this technique really bears little resemblance to Applicant's invention, as described in the amended claims, since the cement-mortar lining is applied by a centrifugal lining process at the pipe manufacturing plant. Additionally, there are shortcomings with the cement-mortar lined pipes which are overcome with Applicant's process. For example, in many instances, unacceptable cracks and looseness in cement linings occur prior to installation, particularly where pipe is stored for a considerable time.

Applicant has thus provided the solution to a longstanding problem in the waterworks industry which avoids the necessity of the use of cement-mortar linings and their attendant disadvantages. Further, Applicant's process, for the first time, provides an improved chemical coating process which avoids the disadvantages which are inherent in the known asphalt and emulsion based coatings, including the release of offensive VOC's.

Further, Applicant arrived at the present invention by locating a commercial coating never before used in the waterworks industry. In fact, the MetalJacket™ 1200 coating was initially formulated as a bonding treatment for bonding metal to rubber parts such as motor mounts used in the automotive industry. In this regard, note Example 5, Col. 22, lines 18-28 of Kucera et al. in which the test metal coupons coated with the phenolic resin were dried, baked and "bonded to natural rubber." Applicant was the first manufacturer in the industry to recognize that the previously described phenolic resin coatings could be adapted for the particular purpose at hand, namely as an agent to provide corrosion protection for ductile iron pipe which forms a part of a water or sewer line.

To the best of Applicant's knowledge, no company in the waterworks industry had appreciated that the MetalJacket™ type coating could be taken from the automotive arena where relatively small parts were being coated for improved rubber-to-metal bonding and applied to, for example, 6 inch

diameter ductile iron pipe. Not only was it not known that such a coating process would successfully pass the ANSI/AWWA industry standards in the waterworks industry, but it was also not apparent that such a coating process could be used economically in such a divergent industry.

Applicant's remaining claims are directed specifically to ductile iron pipe components which form a part of a water or sewer line. The specific "aqueous phenolic resin dispersion" coatings are described at great length in Applicant's Specification as originally filed. The Kucera et al. reference may describe Applicant's general family of coatings, but nowhere suggests the use or feasibility of such coatings for pipe components in the waterworks industry. The Berdin et al. reference fails to supply the deficiency in this teaching since it merely describes an apparatus for coating the inside of pipes. It nowhere teaches or suggests Applicant's specifically described coating as called out in the remaining claim language. The only coating mentioned at Col. 1, lines 11-19 of Berdin is a "polyurethane" coating. Applicant has previously described the various shortcomings with the known coating systems used in the waterworks industry. Berdin et al. nowhere suggests the solution which Applicant has provided to the longstanding problems with spray-on and dip coatings.

Accordingly, amended Claims 14-24 are thought to be allowable over the prior art of record and an early notification of the same would be appreciated.

Respectfully submitted,

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